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UNITED STATES DEPARTMENT OF AGRICULTURE

Animal and Plant Health Inspection Service

Veterinary Services

EQUINE INFECTIOUS ANEMIA

Progress Report

Fiscal Years 1971-76

HISTORY

Equine infectious anemia (EIA) is a virus disease of horses and other equidae. It has been recognized in the United States for over 70 years. There was no practical means of diagnosis until 1970, when Dr. Leroy Coggins at Cornell University perfected the agar-gel immunodiffusion (AGID) test. This new diagnostic tool has given horse owners and veterinarians a practical way to deal effectively with the problem of EIA.

The years 1970 through 1973 were years of pioneering and great transition regarding EIA and the application of the Coggins or AGID test. Beginning in August 1971, Canadian regulations required that all horses entering Canada from the United States were to be accompanied by evidence of a negative AGID test. During these years, testing requirements were initiated for entry of horses into many Standardbred, racetracks, auction sales, and breeding farms. In addition the AGID test was first used as a tool for diagnostic confirmation of EIA in many clinically ill horses in the United States.

Since April 1973, many States have initiated requirements for a negative AGID test for horses and other equidae prior to entry. Among these States, several also require negative tests for horses entering assembly points such as auction markets, race meets, and horse shows.

The U.S. Department of Agriculture does not have a national program to eradicate EIA but does carry on limited actions to help prevent the interstate spread of EIA. In August 1973, the Code of Federal Regulations was amended to prohibit the interstate movement of animals positive to the AGID or Coggins test and animals visibly sick with any infectious disease, including EIA.

The Department has a national approval system for laboratories performing the AGID test, and approximately 100 laboratories are presently approved. This system is designed to help assure uniformity and the highest quality in testing procedures. All State animal health officials have helped to make this national laboratory approval system an effective approach to this testing.

AGID TEST REVEALS INAPPARENT CARRIERS

Prior to the broad field application of the AGID test, inapparent carriers of EIA usually went undetected. AGID testing routines of horses that developed relating to exportation to Canada, interstate movement, auction sales, races, exhibitions, and private change of ownership identified many EIA inapparent carrier animals.

There seems to be increasing sentiment to consider the inapparent carrier of EIA to be harmless and unable to transmit EIA. This concept is fraught with danger. It is true that a high percentage of EIA positive reactors detected in surveys of the horse population appear healthy but are carriers. It also seems that many of these horses have not spread EIA during recent times. However, EIA virus can be demonstrated in the blood of all positive horses, and such horses are potential spreaders of the disease. In addition, one must consider the following factors:

(1) The chronic carrier does not always remain in the chronic state, and when stressed, the animal may become subacute and show intermittent fever.

(2) Mare to foal transmission from chronic carrier mares has been demonstrated and reported in literature.

(3) Three Russian scientists carried out transmission studies with EIA and concluded that transmission for short distances by insects is quite possible from sick, latently infected and apparently recovered animals.

(4) The weight of the evidence shows that over the years people have not, as a common practice, introduced sick horses into their herds. Yet, EIA has perpetuated itself and spread into new herds as a result of movement of chronic carrier horses.

The history of EIA disease outbreaks supports the need to test horses at assembly points such as racetracks, horse shows, and public boarding stables. This action by animal health officials helps prevent the spread of EIA by regulating horses at assembly points.

Contrary to the occasional rumor, the Coggins test is not positive one day and negative the next. The work of Dr. J. E. Pearson and Dr. L. O. Mott, as reported in 1970 from the National Animal Disease Center, showed that the Coggins test is consistent. Blood samples were tested from 57 noninfected horses and from 72 infected horses. A total of 1,280 samples collected from these animals at various times demonstrated that when a horse became positive, it remained positive; all negative horses remained negative throughout the evaluation.

The Coggins or AGID test, like most serological procedures, is based on the detection of circulating antibodies and is not a direct measure of the virus in the blood. Thus, during the incubation period of the disease, there may be too few antibodies to measure by the Coggins test; yet, the animal is actually developing the disease.

CHEMOTHERAPY AND VACCINES

Chemotherapy to eliminate the virus of EIA from horses and other equidae would be desirable. The following is an excerpt from the U.S. Animal Health Association's 1975 Report of the Committee on Infectious Diseases of Horses:

A report was received on the current status of controlled studies conducted at the University of Florida concerning the treatment of EIA reactors

with thiouracil. The results of these studies indicate that thiouracil treatment of 16 animals was ineffective in eliminating infectious anemia virus from this group of inapparent carriers. Four of the 16 animals died, and the remaining 12 continued to carry the EIA virus. Attempts are being made to substantiate or refute claims that 6 of approximately 70 horses treated with thiouracil under field conditions became AGID test negative. The identity, history, and current AGID status of these animals will be carefully examined. However, in consideration of the lack of efficacy of thiouracil under controlled conditions, the College of Veterinary Medicine, University of Florida, does not, at this time, recommend the use of thiouracil in the treatment of EIA.

It was reported that experimental vaccine trials at Texas A&M University failed to protect equidae against the virus of EIA.

Occasionally, information on research work is offered prematurely and in such a form that horse owners cannot properly interpret the research data, thus giving rise to misunderstandings and disappointments. A vaccine to protect horses and other equidae against EIA would be desirable, but progress in research on a vaccine to protect against EIA has been very disappointing. Several trials using killed vaccines have not protected horses, and experiments with attenuated virus have shown these vaccines are not effective.

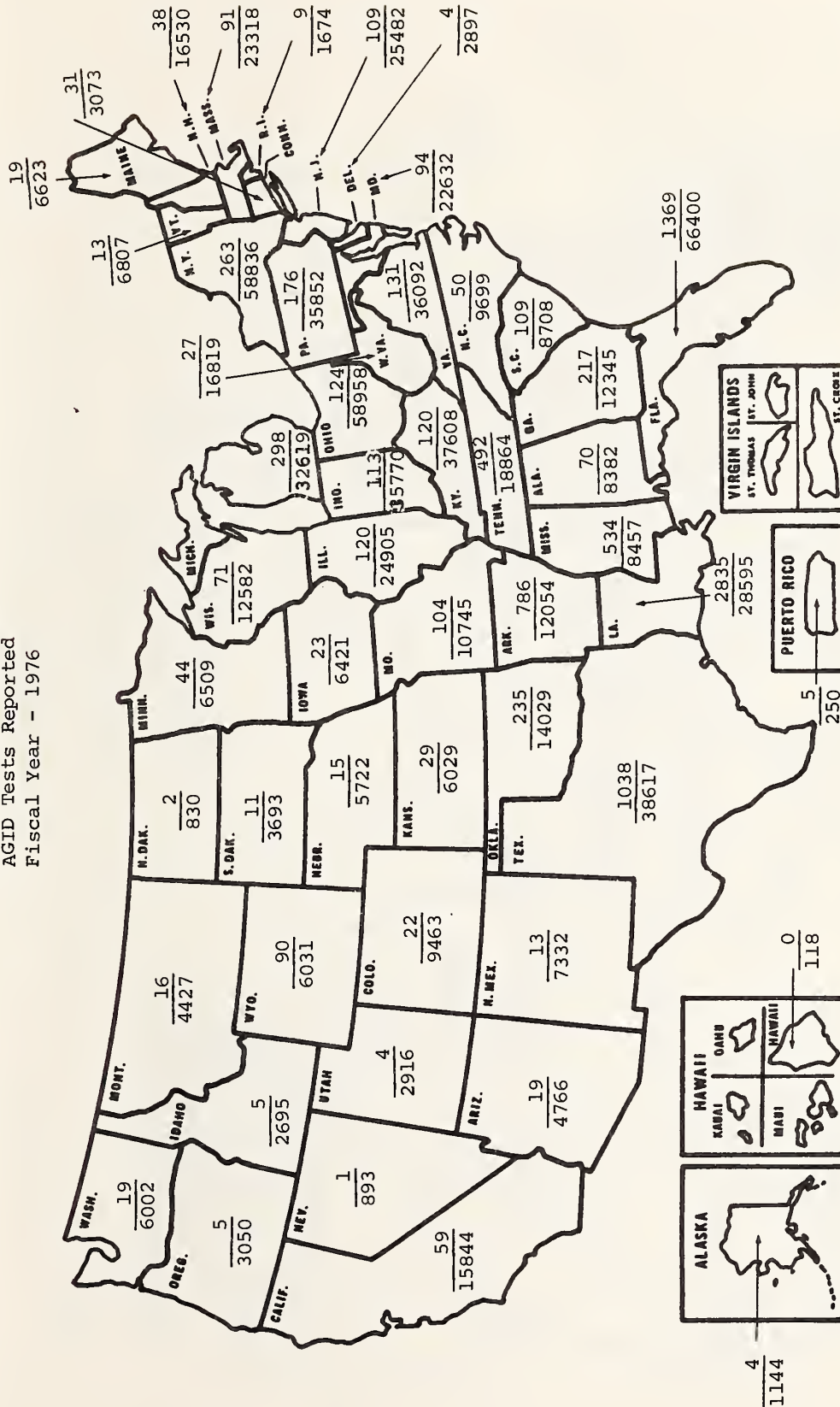
It is believed that the incidence of EIA in the U.S. horse population presently is between 2 and 3 percent. In all likelihood, by the time vaccines or chemotherapeutic agents against EIA could be perfected, progress toward elimination of this disease by tests and quarantine of reactors would be so far advanced that the application of vaccines and chemotherapeutic agents would not be practical.

AGID TESTS REPORTED

Since August 1973, all AGID tests are official tests and are reportable to State animal health officials. Those tests reported prior to August 1973 were voluntarily reported to animal health officials.

The accompanying maps show tests reported by year. In addition, State testing requirements are represented on an enclosed map.

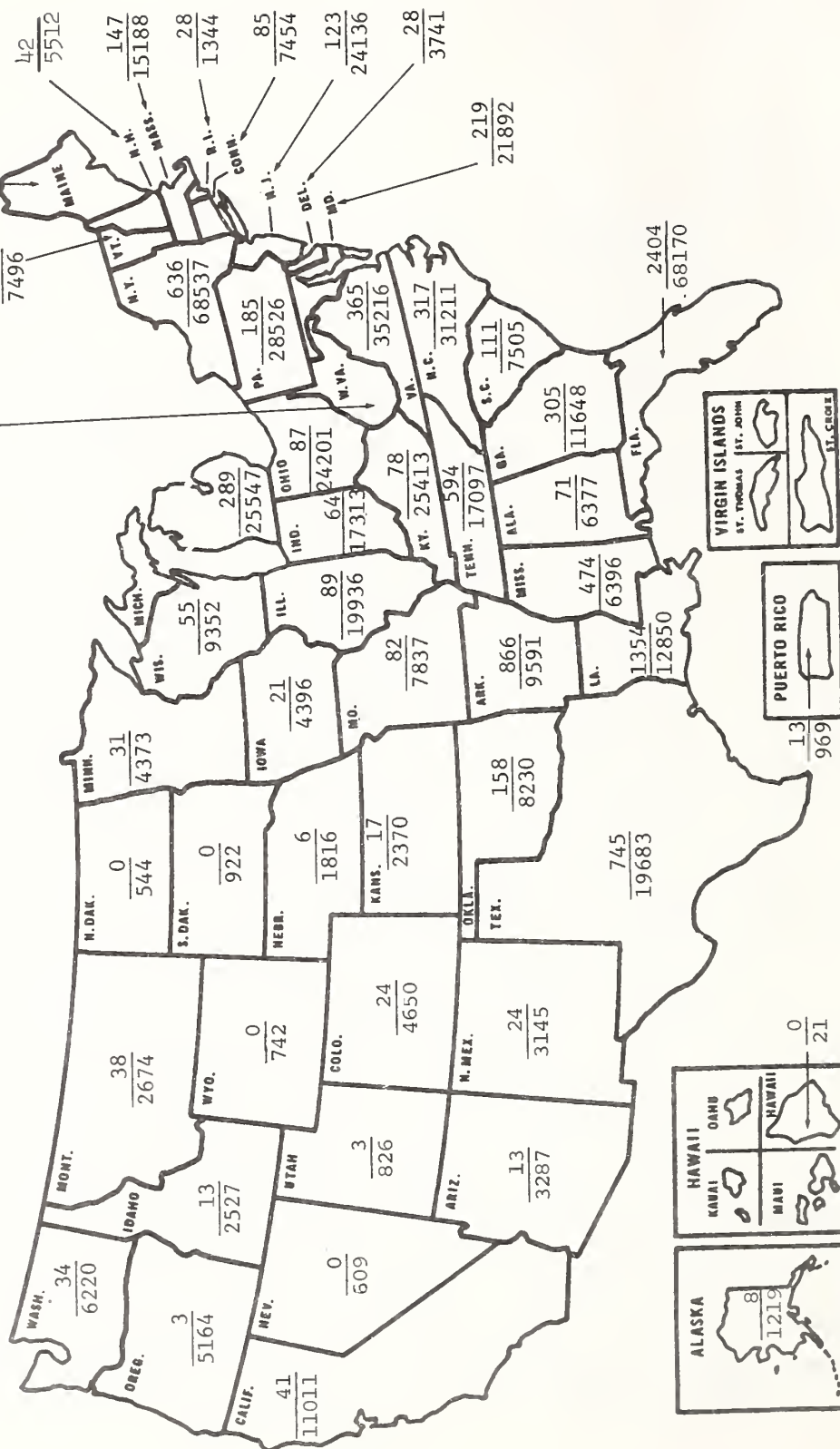
EQUINE INFECTIOUS ANEMIA
AGID Tests Reported
Fiscal Year - 1976



AD-491.2
2-82

REVISED 11-28-75:CHANGED
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EQUINE INFECTIOUS ANEMIA
AGID Tests Reported
Fiscal Year - 1975

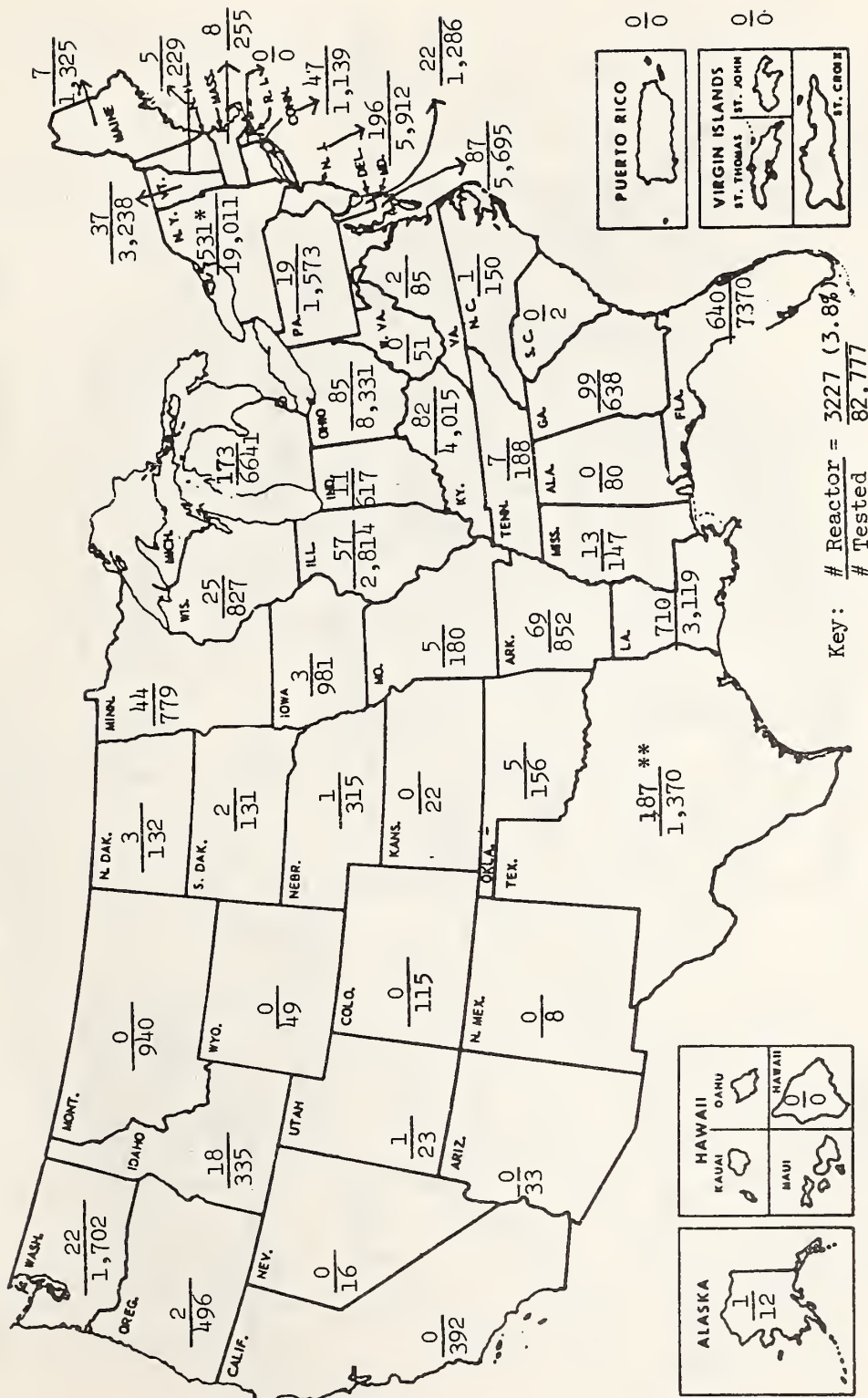


Key: # Reactions 10468
Tests 621030

Percentage of reactors 1.57%

AD-401.2
2-82

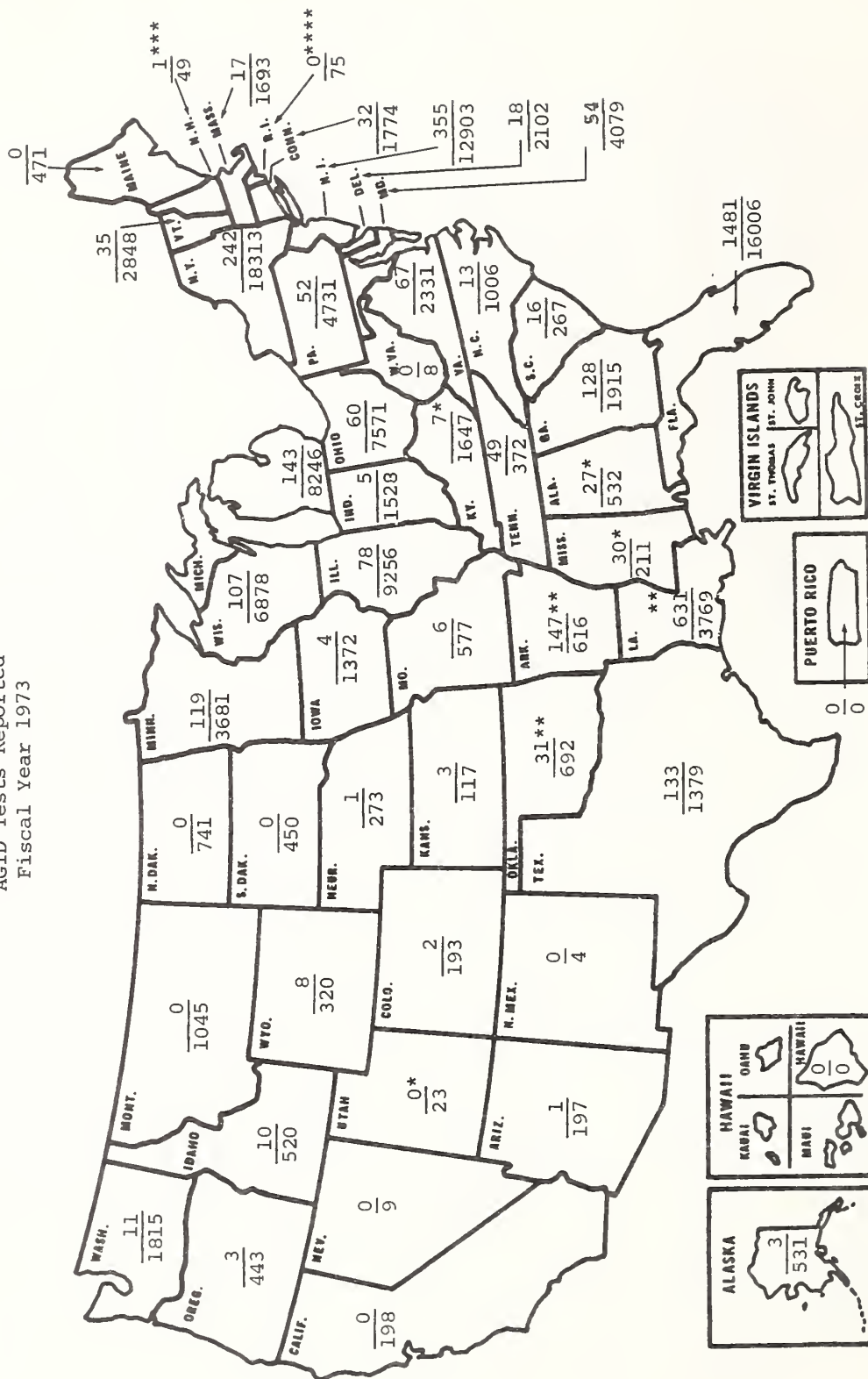
EIA - AGID TESTS REPORTED -- FISCAL YEAR 1972



* Composite of several States

** Period 9/1/71 - 7/20/72

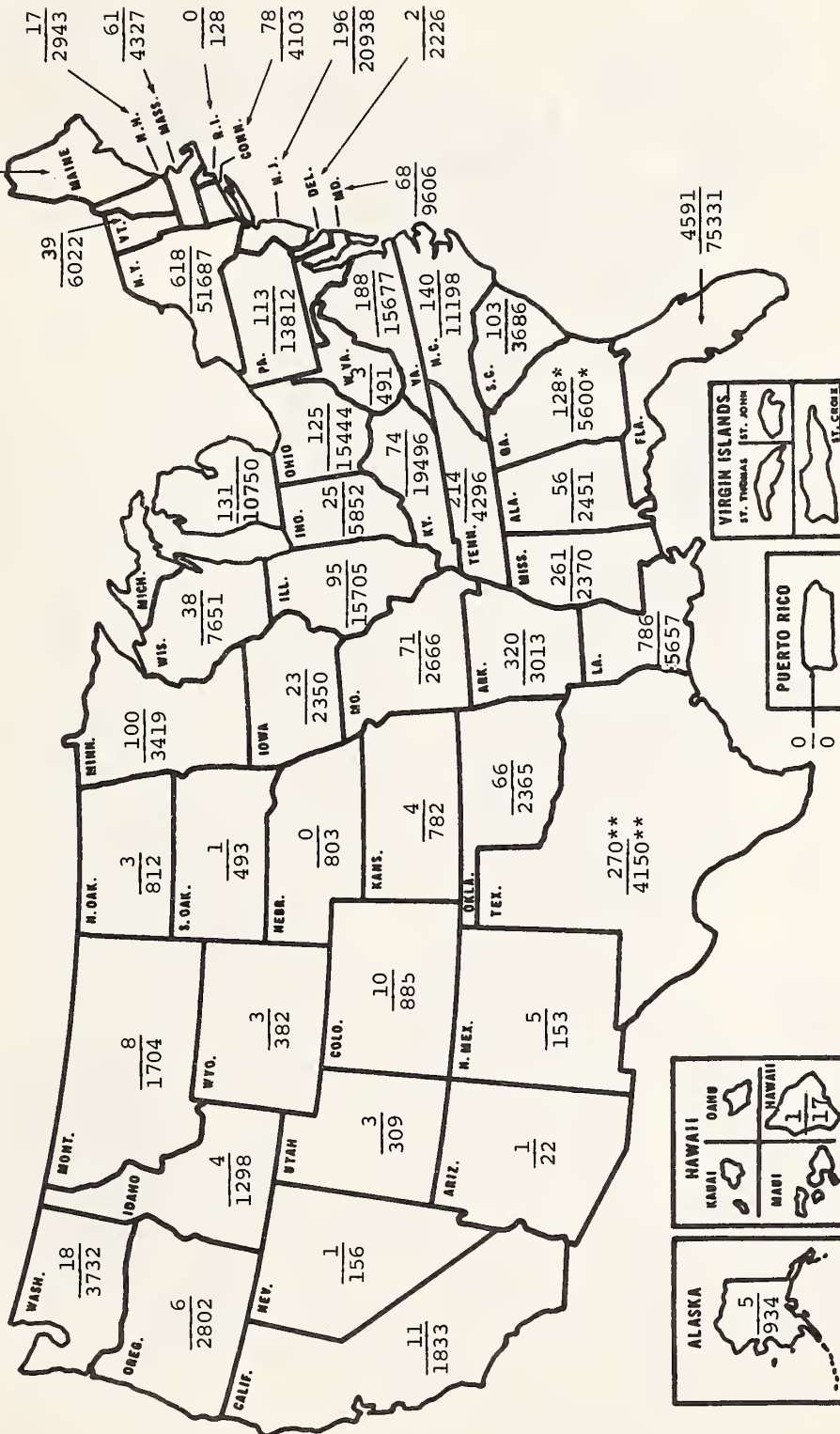
EQUINE INFECTIOUS ANEMIA
AGID Tests Reported
 Fiscal Year 1973



* Period January through June 1973 only.
 ** Period January through September 1973 only.
 *** period July through December 1972 only.
 **** Estimated.

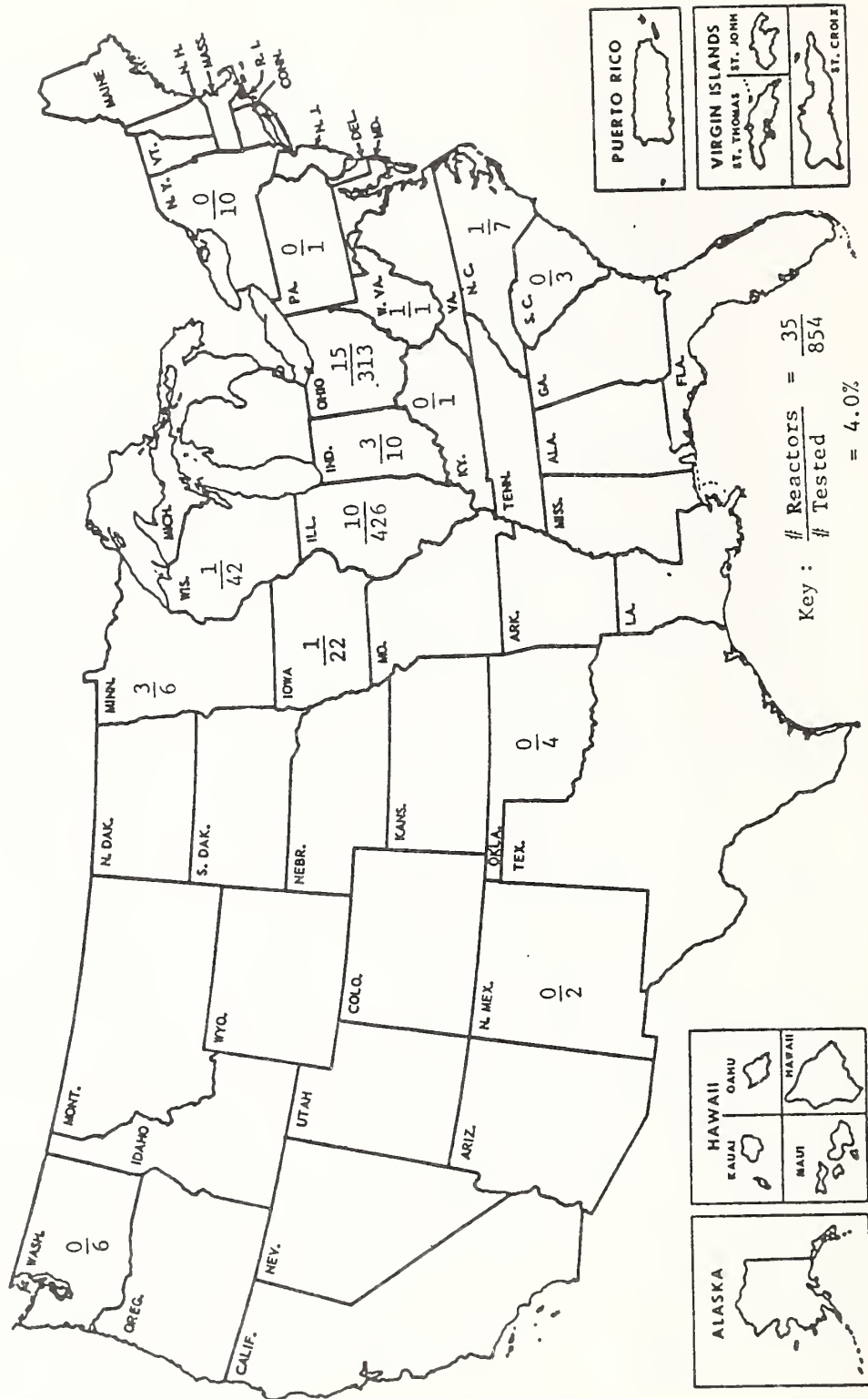
KEY: #Reactions = 4,130 = (3.3%)
 #Tests 124,837

EQUINE INFECTIOUS ANEMIA
AGID Tests Reported
Fiscal Year 1974



* Includes tests performed January through June 1974.
** Includes tests performed September through May 1974.

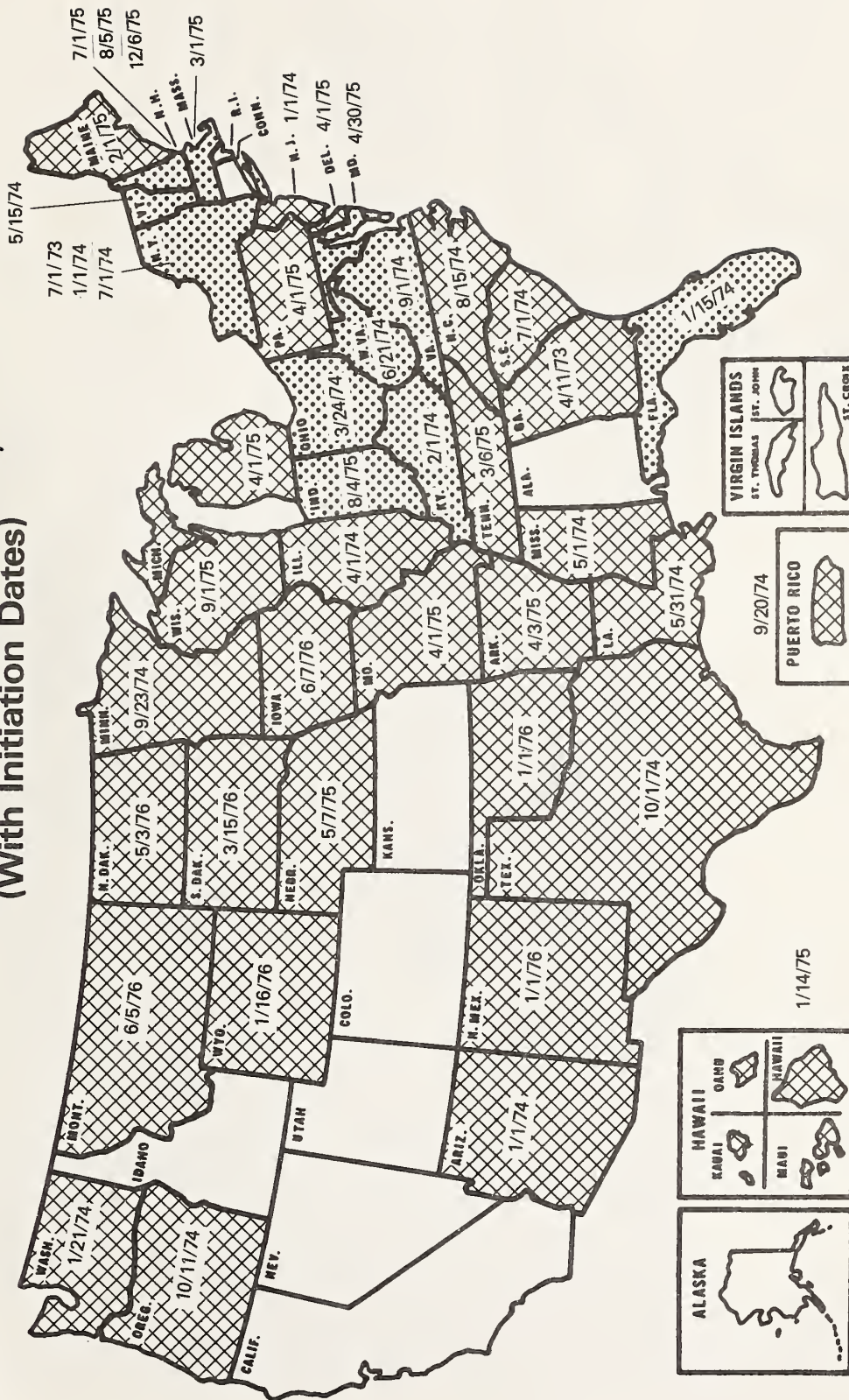
EIA - AGID TESTS REPORTED - FISCAL YEAR 1971



EQUINE INFECTIOUS ANEMIA

State Testing Requirements

(With Initiation Dates)



Negative AGID test prior to entry plus other test requirements at concentration points.

Negative AGID prior to entry.

